body knows Darwin's own account, how, as the laborious years passed, he so lost his taste for poetry that he could not endure to read a word of it; Shakespeare became so dull it nauseated him, and music set him thinking too energetically on what he had been working at, instead of giving him pleasure. If all this loss was the price of years of fruitful concentration in the master, who can wonder if the scientific and documentary age is an age of prose?

NOTES.

We are delighted to learn that the sum of 25,000*l.* required for the purchase of the site for new chemical laboratories at University College, London, has now been obtained, thanks to a generous gift of 4500*l.* from Mr. Ralph C. Forster, The Grange, Sutton, Surrey. He is a member of the firm of Messrs. Bessler, Waechter, and Co., merchants, of Salisbury House, E.C. He was Sheriff for the county of Surrey in 1906. The total sum required for the purchase of the site and the erection of the laboratories was 70,000*l.* It is estimated that a sum of between 45,000*l.* and 50,000*l.* is still required for the erection of the buildings. It is hoped that this object will commend itself to the generosity of some public-spirited citizen, who will come forward with what is required to complete the scheme.

The Chemical Society of France has recently elected the following foreign honorary members:—A. v. Baeyer, Munich; Emil Fischer, Berlin; P. Guye, Geneva; L. Henry, Louvain, Belgium; C. Istrati, Bucharest; A. Lieben, Vienna; Louguinine, St. Petersburg; Raphael Meldola, London; Paternò, Rome; Sir Wm. Ramsay, London; and Ira Remsen, Baltimore. The late Prof. S. Cannizaro had also been nominated by the council, but his death prevented his nomination being confirmed by the general meeting of the society.

An international committee of representative men of science of distinguished eminence has been formed to raise the funds necessary to celebrate appropriately the jubilee of Prof. Gaston Darboux's connection with French university education, the distinguished work he has done for mathematics, and his services as permanent secretary of the Paris Academy of Sciences. Donations may be sent to Prof. Guichard, the general secretary of the international committee, at the Sorbonne, Paris. It is proposed to present Prof. Darboux with a medal, reproducing his portrait, together with an address signed by the subscribers. Subscriptions of 25 francs will give the right to a medal in bronze, and of 50 francs to a medal in silver, which will be reduced reproductions of that to be offered to Prof. Darboux.

The death is announced, in his seventy-first year, of M. E. A. Léveillé, formerly president of the French Entomological Society.

The president of the Bureau des longitudes in Paris for the present year is M. G. Bigourdan. M. B. Baillaud is the vice-president, and M. H. Andoyer the secretary.

On Wednesday next, February 8, a portrait of Prof. W. Boyd Dawkins, F.R.S., will be publicly presented to the University of Manchester by the subscribers. The presentation will take place in the Whitworth Hall of the University at 4 p.m.

At a meeting of the research department of the Royal Geographical Society on Thursday, February 16, Prof. Edgeworth David, C.M.G., F.R.S., who was geologist on Sir Ernest Shackleton's Antarctic expedition, will submit his views on certain important Antarctic problems, namely, climate, physical structure, tectonic relations with the Andes, &c.

Four lectures on plague will be delivered on February 14, 15, 16, and 17 by Dr. F. M. Sandwith, Gresham professor of physic, at the City of London School, Victoria Embankment, E.C. The lectures are free to the public, and will begin each evening at six o'clock.

At a recent general meeting of the Liverpool Astronomical Society it was resolved to raise a special fund for the purpose of a memorial to the late Mr. R. C. Johnson, whose long connection with the society, in which he filled the positions of secretary and president, and his services in the interests of astronomical science, suggest that some permanent recognition of his work should be made.

A memorial in marble to the late Sir John Evans, K.C.B., has been placed by his friends in the parish church of Abbot's Langley, Herts—a parish in which Sir John resided for sixty years of his life. The inscription on the tablet records not only the eminence of Sir John Evans in science, but likewise the high administrative and judicial positions he held in the county.

During the last fifty years Profs. Luiji Palmieri, M. S. di Rossi and others, have, with tromometers, microphones, and various other contrivances, endeavoured to record the internal murmurings and thunderings of Vesuvius, Etna, and other volcanoes. One of the last professors of vulcanology at the Royal University of Naples was H. J. Johnston-Lavis, whose work has been chiefly directed to the mineralogy and petrology of volcanoes. Now it is rumoured that Italy is to have a Vulcanological Institute, for the establishment of which the chief governments will be invited to contribute 60,000*l.* Mr. Immanuel Friedlaender, who resides in Naples and has recently published a work on the volcanoes of Japan, has promised, it is said, 4000*l.* towards this fund.

The centenary of the foundation of the publishing firm of B. G. Teubner, of Leipzig, will be commemorated on Friday, March 3. A large number of representatives of science and education have been invited to take part, and hotel accommodation is being arranged on behalf of those who have accepted the invitations.

An oversea flight of about a hundred miles was made by Mr. McCurdy on January 30 with an aeroplane of the Curtis type, weighing 750 lb. and possessing a 60-horse-power motor. Mr. McCurdy attempted to fly from Key West, Florida, to Havana, a distance of about 110 miles across the Florida Straits. When about ten miles from his destination he had to descend on account of the lubricating oil having been exhausted. The aëroplane was equipped with pontoons, which enabled the descent upon the sea to be made without injury to it or the airman.

The British South Africa Company, Reuter's Agency states, has decided upon the despatch of a special commission to investigate sleeping sickness in Rhodesia. The commission will consist of Dr. Aylmer May, principal medical officer of northern Rhodesia; Dr. A. Kinghorn, of the Liverpool School of Tropical Medicine; Dr. Leach, of the Northern Rhodesian Medical Service; Mr. O. Silverlock, entomologist; and Mr. Jollyman, bacteriologist. As explained in Nature of December 1 (p. 147), it is believed that in north-eastern Rhodesia and Nyasaland sleeping sickness is not transmitted by *Glossina palpalis*, but is probably carried by *G. morsitans*, a species which, unlike *G. palpalis*, is not confined to well-defined and limited areas in the neighbourhood of water, but is distributed over large districts.

ACCORDING to a *Times* correspondent at Tiensin, a slight earthquake shock was experienced there at 8.45 a.m. on January 25. A Reuter message says that on January 28 the eruption of a volcano at Taal caused at Manila three strong earthquakes, and nearly a hundred lesser shocks. A later message states that towns for a radius of twenty miles are suffering from a rain of mud and stones, due to the volcanic eruption at Taal. Five small villages in the Taal district appear to have been destroyed by a great wave, and no fewer than 400 lives were lost in that region.

THE preliminary reading of the Bill for making official time in France coincide with Greenwich time was accepted in the French Senate on January 26, on the understanding that the Paris meridian should still be adopted for naval, astronomical, and cartographical requirements. Decided advantage will accrue from the introduction of uniform time in western Europe, and the Bill before the Senate will be widely welcomed. The essential article of the Bill reads:—"Official time in France and in Algeria shall be Paris mean time put back nine minutes and twenty-one seconds."

ON Thursday next, February 9, Dr. P. Chalmers Mitchell will begin a course of three lectures at the Royal Institution on "Problems of Animals in Captivity," and on Saturday, February 11, Dr. Thomas G. Jackson will deliver the first of three lectures on "Architecture: the Byzantine and Romanesque Period." The Friday evening discourse on February 10 will be delivered by Sir Sidney Colvin on "Robert Louis Stevenson," on February 17 by Prof. Henry E. Armstrong on "The Stimulation of Digestive Activity," and on February 24 by Prof. Jean Perrin on "Mouvement Brownien et Realité Moleculaire" (in French).

THE theatre of the Museum of the Yorkshire Philosophical Society in York has for several years been a subject of concern to the council. Though larger than most of the theatres belonging to the principal London societies, it is often inconveniently overcrowded. This state of things, we learn from the *Yorkshire Herald* of January 19, is now in a fair way of being remedied. The president of the society, Dr. Tempest Anderson, has decided to apply to the building of a new theatre a sum of money left to him by his sister, the late Mrs. Percy Sladen, to be used for some scientific purpose. The well of the present theatre will be boarded over with either a permanent or movable floor, and this hall will thus become available as a reception room for use before or after the lectures, and also for smaller meetings. The new theatre will be built at the west side of the present building, space being reserved in front of it for a further enlargement of the museum. The proposed theatre will be about 79 feet long and 47 feet wide, and will comfortably seat nearly 400 people. Between the higher tiers of the seating and the basement hall a workroom (39 feet by 26 feet) will be provided.

THE Research Defence Society was founded three years ago to make generally known the facts as to experiments on animals in this country, and the regulations under which they are conducted: the immense importance of such experiments to the welfare of mankind, and the great saving of human and animal life and health which is already due to them. Under the presidency of Lord Cromer, and by the untiring efforts of the honorary secretary, Mr. Stephen Paget, the society has done and is doing excellent educational service in the cause of science and humanity. From a short statement just issued of its work during the past year, it appears that since January last twenty-one pamphlets and leaflets have been published by the society upon such subjects as Pasteur, science, and medicine; plague in India; diphtheria and antitoxin; sleeping sickness; Malta fever; and humanity and science. There has been a very great increase during the year in the quantity of pamphlets and leaflets distributed, and in the number of addresses and popular lectures, and lantern lectures, given by members of the society in all parts of the country. A large number of the publications has been distributed among public libraries and similar institutes, and also sold in the ordinary way of publication. There are now nearly four thousand members, but it is hoped that many more people in sympathy with its aims will become members or associates of the society, and help to extend its educational work.

MANY attempts have been made to synchronise the phonograph or gramophone with the kinematograph, so as to be able to reproduce simultaneously the sounds of the voice, as in singing and speech, while the movements of the face and the bodily gestures of the singer or speaker are depicted on the screen. The difficulty has been twofold: how to obtain the exact synchronism and how so to intensify the vocal sounds, or rather the mechanism for recording the vocal sounds, as to allow the sound-recorder to be placed at something like the same distance from the speaker as that between the speaker and the kinematograph. The difficulties, however, appear to have been surmounted by M. Gaumont. In *La Nature* of December 31 last, an interesting description is given of a meeting, on December 27, of the Paris Academy of Sciences, at which, by means of M. Gaumont's method, there appeared on the screen an image of M. d'Arsonval which made gestures and delivered an explanatory speech. The details of the method are not fully developed, but they are to be made public without delay. It appears that M. Gaumont has been struggling with experimental difficulties for more than eight years. We may soon have in our homes the *chefs-d'oeuvre* of our theatres played by our best actors, and even lectures by famous professors may not be restricted to their class-rooms, but the speakers may be both seen and heard at so much a yard. Such reproductions are to be called *phonoscenes*. We may well say with Dominie Sampson—"prodigious"!

THE syllabus for the first half of the present year of the North London Natural History Society provides plenty of opportunities for those members who wish to do serious out-door work in their subject, as well as to attend lectures and meetings for discussion. The session opened on January 10, when Mr. M. Greenwood, the president, delivered his presidential address, taking for his subject "Science from the Non-professional Standpoint." He laid great emphasis on the value of amateur science, and reminded the members that it has been said the amateur is the glory of British research. "Remember that the greatest biologist our country has produced, Charles Darwin, was an amateur." Mr. Greenwood summarised the leading principles of a great man of science as patience in labouring, impartiality in judging, absolute candour in stating the conclusions to which his researches lead him, and a resolute scorn of the idols of the market-place. The function of science in the life of a non-professional student is of high importance, he said, and that to draw the utmost advantage from his work it is well for such a student to concentrate his energies upon a limited number of subjects, and, above all, to devote original, independent thought to whatever he undertakes. "The fundamentally valuable thing in scientific study is the mental attitude it engenders. It is doubtless true that we, as a nation, do not spend enough money on pure research and technical instruction; but behind and beyond all this lies our chief national sin—a contempt for scientific reasoning, a striving after short cuts to knowledge, and a slovenly omniscience, as witnessed in our love for examinations and worship of success, *qua* success." Particulars concerning the society may be obtained from the secretaries, Messrs. S. W. Bradley and T. R. Brooke, 12 Warren Road, Chingford, N.E.

DR. F. GRÖN makes some remarks in *l'Anthropologie* (Tome xxi., p. 625) on the prehistoric operation described by Prof. Manouvrier by the term "T sincipital." This is a T-shaped groove of variable depth that is found in certain Neolithic skulls, which extends along the sagittal and lambdoidal sutures. Skulls of all ages, from prehistoric to recent times, and from many countries, have been collected which show indubitable evidence of trepanation. These perforations are generally admitted to be surgical operations in order to alleviate pain or to cure certain diseases. Celsius, speaking of malaria of the eyes, refers to a curative operation of cutting the skin by sagittal and frontal incisions, but Dr. Grön does not consider that this is the same operation as that under consideration. He directs attention to the fact that all the skulls found in France with the "T sincipital" are those of women, and puts forward the view that it was not a prehistoric operation undertaken for medical reasons, but a form of punishment of which the vestige is found in the stigmata of historic times. The author adds:—"Certainly this opinion is only a hypothesis."

IN an interesting paper presented to the research department of the Royal Geographical Society on January 19, Messrs. A. J. B. Wace and M. S. Thompson discuss the distribution of early civilisation in northern Greece in relation to its geographical features, and in particular the communications through the mountain passes and the forests of Thessaly, which in ancient times seem to have extended over a much wider area than that which they occupy at present. These remains generally take the form of high or low mounds, most of them situated in the plains, but a few are to be found in the foothills. Both of these types must be distinguished from the conical mounds covering Hellenistic tombs, which extend into the prehistoric area. The civilisation of the race occupying these sites is of a primitive type, widely different from the more advanced Minoan culture of the south, which apparently reached northern Greece in its latest phase, and did not replace the local cultures. The co-existence of this northern Neolithic culture with the use of bronze further south must be taken into account in considering the usually accepted view that the Achæans were invaders from the north.

THE expedition of the Duke of the Abruzzi to the Karakoram Himalayas is described by Dr. Filippo de Filippi in the January number of the *Geographical Journal*. In spite of many difficulties, much useful and important work was accomplished. Sedimentary and crystalline rocks were found, constituting different portions of the region traversed, and peaks rising well above 20,000 feet occurred in each. Measurements at the beginning and end of the expedition on the Baltoro glacier gave the average movement as 5½ feet a day during June and July; some articles of equipment left on the upper Goodwin-Austen glacier by the Eckenstein-Wessely-Guillarmod expedition in 1902 furnished another means of measurement, and here the movement was less than a mile in seven years, or an average rate of barely 2 feet a day. Aneroid observations were found to be unsatisfactory, but valuable work was done by photogrammetry supplemented by theodolite observations, and in this way much was accomplished in spite of the unfavourable weather.

BULLETIN No. 19 of the Agricultural Research Institute at Pusa is devoted to a list of the vernacular, scientific, and English names of the commoner Indian insects.

THE *Scientific American* for January 7 contains a long illustrated article on the New York Zoological Park, which embraces an area of 264 acres, and contains at the present time more than 5000 wild animals. That the park is highly appreciated by New York people may be inferred by the fact that 1,614,953 persons passed the turnstiles last year. Attention is specially directed to a huge open-air bird-cage, with a ground-area of 152 by 75 feet, and a height of 55 feet, and enclosing three fair-sized forest trees and a pond of 100 feet in length. Naturally, the authorities have endeavoured to exhibit a representative series of the animals of North America, among which at the present time a special feature is the show of the various forms of huge brown bears inhabiting Alaska. A new and noteworthy exhibit is the herd of six musk-ox calves, five of which were recently received from Ellesmere Land, Greenland, as the gift of Paul J. Rainey. "Miss Melville," the sixth specimen, arrived a year ago from Melville Island. These six constitute the only live herd of these animals in captivity.

IN its January issue, the *American Naturalist* prints an address on "organic response," delivered by Dr. D. T. Macdougal, the president, before the meeting of the Society of American Naturalists held at Ithaca, N.Y., on December 29, 1910. The article is of such length that it is difficult to give a *prècis* of its scope within the normal limit of a note in this column. The chief subject is, however, the changes undergone by animals and plants under different conditions of environment, especially as the result of artificial transportation or transplantation. After alluding to the peculiar suitability of micro-organisms with a short life-cycle to experiments of this nature, and the results obtained therefrom, Dr. Macdougal refers to the difference in the breeding habits of the spotted salamander according as to whether it lives at high or low levels, the species being viviparous under the former and ovoviviparous under the latter conditions. It is added that if the Alpine black salamander be kept in a high temperature, its larvæ resemble those of the spotted species when in its lower habitat, whereas if the spotted kind be kept in a low temperature, its reproductive habits and young approximate to those of its black relative. Attention is next directed to the results obtained by transporting beetles to habitats unlike their own, after which comes a fuller account of the American experiments in regard to growing selected kinds of plants at different elevations and under different conditions of climate and soil. These experiments are being conducted on a very extensive scale, large "xero-montane," "montane," "maritime," and other types of plantations having been established in California, Arizona, and elsewhere. For the results of these our readers must refer to the address itself.

IN the latter part of the article on sexual dimorphism in plants, published in the *Biologisches Centralblatt* (November 15, 1910), Prof. Goebel describes some anomalous features observable in flowers of the Compositæ. Generally, as in Calendula, the female ray florets are larger than the hermaphrodite or the male tubular florets. But in *Homogyne alpina*, *Cotula coronopifolia*, and species of Xanthium the female flowers are smaller. In *Petasites niveus*, which is diœcious, the inflorescence of female flowers grows considerably after the flowering period, while the inflorescence of male flowers remains small; yet the female flowers individually are much smaller than the male, especially in the corolla. The author suggests that these anomalies may be explained as the result of two opposite tendencies, the one to enlarge the corolla for show, as in the ray florets, the other, frequent in unisexual flowers, to reduce the corolla.

A VIVID sketch of two botanical excursions in the south-west region of West Australia is communicated by Captain A. Dorrien-Smith to the Journal of the Royal Horticultural Society (vol. xxxvi., part ii.), where the author says that the magnificence of the flora surpasses that of any other region he has visited. In the neighbourhood of Cape Naturaliste, *Banksia grandis*, *B. attenuata*, a blue Leschenaultia, and *Templetonia retusa* were conspicuous. The finest display was encountered at Warrangup Hill (2800 feet), in the Stirling Range, where a giant white Epacrid, *Lysinema ciliatum*, tall bushes of a pink-flowered Protead, *Isopogon latifolius*, and the golden-flowered *Dryandra formosa* attracted special attention. Another vegetation sketch, ecological rather than floristic, in the same number deals with rare wild flowers in the west of Ireland, in which Mr. Lloyd Praeger describes, and in some measure explains, their peculiar distribution. The article is recommended to students as an admirable essay on a unique and instructive combination of ecological problems.

HAVING regard to the recent consummation of the Union of South Africa, Prof. H. W. Pearson took advantage of an opportune occasion to lay before the biological section of the South African Association for the Advancement of Science during last November, in his presidential address, the great desirability and advantages of a South African National Botanic Garden. In the first instance, Prof. Pearson, while assigning due credit to the work of existing institutions, notably the Natal Botanic Garden ably administered by Mr. Medley Wood, pointed out that none of these provides sufficient area or is situated in a suitable locality for an establishment or State department, which should comprise not only horticultural departments, an experimental garden and herbarium with library, but also a museum of economic products, research laboratories and a staff of technical assistants and plant collectors. Chief among the arguments advanced are the non-existence of a garden where the unique plants of South Africa are grown and investigated, the necessity for the study of the veld vegetation with a view to the improvement of the fodder grasses, and the desirability of extended botanical exploration.

THE REV. M. SADERRA MASÓ, who has for many years studied the earthquakes of the Philippine Islands, is now turning his attention to the subterranean noises known in other countries under various names, such as mist-pœffeurs, marinas, brontidi, retumbos, &c. In the Philippines many terms are used, generally signifying merely rumbling or noise, while a few indicate that the noises are supposed to proceed from the sea or from mountains or clouds. Most of the places where they are observed lie along the coasts of inter-island seas or on enclosed bays; very few are situated on the open coast. The noises are heard most frequently at nightfall, during the night and in the early morning, especially in the hot months of March, April, and May, though in the towns of the Pangasinan province they are confined almost entirely to the rainy season. They are compared in 70 per cent. of the records to thunder. With rare exceptions, they seem to come from the mountains inland. The instances in which the noises show any connection with earthquakes are few, and observers usually distinguish between them and the low rumblings which occasionally precede earthquakes. It is a common opinion among the Filipinos that the noises are the effect of waves breaking on the beach or into caverns, and that they are intimately connected with changes in the weather, generally with impending typhoons. Father Saderra Masó is inclined to agree with this view in certain cases. The typhoons in the Philippines sometimes cause very heavy swells, which are propagated more than a thousand kilometres, and hence arrive days before the wind acquires any appreciable force. He suggests that special atmospheric conditions may be responsible for the great distances to which the sounds are heard, and that their apparent inland origin may be due to reflection, possibly from the cumulus clouds which crown the neighbouring mountains, while the direct sound-waves are shut off by walls of vegetation or inequalities in the ground.

THE Berne correspondent of the *Morning Post* (January 20) states that a fall of what has been called "black" snow, which occurred recently in the Lower Emmen Valley, has caused a great deal of interest in Switzerland. The most reasonable explanation put forward is that in certain conditions of weather snow may take an appearance of blackness which is quite deceptive. It appears that after the snowfall there was a slight thaw, and a very fine rain fell. While it was still raining, the "Bise," a piercing cold and dry north or north-east wind, set in, and froze the rain on the surface of the snow. Underneath the crust of pure ice thus formed there was a small air-filled space, and the light when reflected from the snow beneath produced to the eye a dark appearance. We find that in the "Glaciers of the Alps" (p. 204) Tyndall refers to another optical effect caused by the condition of the snow on the Montanvert in winter, in which "the portions most exposed to the light seemed least illuminated, and their defect in this respect made them appear as if a light-brown dust had been strewn over them."

ACCORDING to usual practice, Dr. H. R. Mill has communicated to the *Times* (January 17) a preliminary statement of the general character of the rainfall of 1910, and also an abridged summary of the same to *Symons's Meteorological Magazine* for January. As we have already referred (January 5) to statistics prepared from another source, we need only quote here some of the leading features shown by Dr. Mill's first examination of about 3000 records of the British Rainfall Organisation. The results, which are exhibited by maps, and by carefully prepared tables for stations and districts, show that the British Isles, as a whole, had an excess of 8 per cent.; Wales had an excess of 17 per cent.; southern England, 16 per cent.; Ireland, 9 per cent.; northern England and Scotland, less than 5 per cent. The relatively wettest area was in portions of Somerset and Monmouth, where the excess exceeded 30 per cent. A very wet area extended through Devon and Cornwall, along Dorset, Wiltshire, Hampshire, and Sussex, also to Hereford and part of Wales, but in many places the rainfall was below the average, especially on the coasts. The year had one of the wettest Februaries and one of the driest Septembers on record. Dr. Mill remarks that the relation of two dry years followed by a wet year, which prevailed for England and Wales for twenty-one years, including 1909, has now completely broken down, and that it seems possible that the swing of the pendulum is carrying us into a period of predominating wet years, corresponding to the wet period of 1874–83.

IN the *Memorie del R. Istituto Lombardo di Scienze e Lettere* Signor A. M. Pizzagalli has published a memoir, "La cosmogonia di Bhrgu," an investigation of the relation of the cosmogonic myth to the epics of India. The cosmogony of Bhrgu is part of one of the subdivisions of the twelfth book of the Mahabharata; it is in the form of a dialogue between two legendary persons, Baradvaja and Bhrgu, the former asking questions, the latter answering them. It deals with the origin of all things in the animal as well as in the vegetable world, which are supposed to have the same composition and to be essentially identical. It shows how the vital flame combines with the earth-element to form the body of the individual, while the soul, an efflux of the Supreme Being, pervades and rules the body and endows it with various qualities. A complete translation of the dialogue is given; there is nothing astronomical in it.

"THE Structural Design of Aëroplanes" forms the title of a paper read before the Institution of Civil Engineers of Ireland by Prof. Herbert Chatley about a twelvemonth ago, and now reprinted (Dublin: John Falconer, 1910). In it the author endeavours to apply exact mathematical methods to the calculation of the stresses in the sustaining framework of an aëroplane, as well as in the supporting surfaces. In view of the number of deaths that have resulted in the past year from breakages of aeroplanes, the alternative causes frequently being instability, it ought to be evident that the only way of placing the problem of aviation on a satisfactory basis, and of preventing future fatalities, is by encouraging the further development of investigations such as Prof. Chatley's, and by determining exeprimentally the unknown data which such investigations show to be necessary in order to complete the solutions of such problems—the latter being evidently a comparatively easy task. In the discussion on the paper, however, we notice the usual want of appreciation of the methods of exact science on the part of so-called "practical men."

M. GILBERT MAIRE contributes to *La Revue des Idées* for November 15, 1910, an account of an interesting medico-psychological study of Prof. Henri Poincaré undertaken by Dr. Toulouse. Owing to the wide public interest which has been aroused, especially in France, by Poincaré's writings on the philosophy of science and on the concepts of mathematics, many readers will wonder how and under what conditions Poincaré originates his investigations. It is evident from the present account that when absorbed in a problem Poincaré has often, like many another genius, become oblivious to matters of everyday life. What seems, however, to have most impressed Dr. Toulouse was that Poincaré's discoveries were not arrived at as the result of a concentration of mental effort, but that they have come on him spontaneously, often when his thoughts have been turned in quite different directions. For this kind of faculty Dr. Toulouse has proposed the name "auto conduction." Whether a new name was really needed, or whether the same faculty has already been recognised and described under other names, is a matter on which there may be more than one opinion. At the same time, the fact that Poincaré, and probably many other philosophers, and especially mathematicians, became suddenly inspired by new ideas (and, indeed, find it impossible to throw these ideas on one side, even temporarily, until they have developed them), affords an interesting problem for the psychologist, and Dr. Toulouse's examination may well direct attention to this problem.

THE four numbers of the Journal of the Royal Society of Arts ending with that of January 13 contain the text of the Cantor lectures on industrial pyrometry which have been delivered before the Society by Mr. C. R. Darling. The last two lectures concern themselves mainly with the simplified forms of the platinum thermometer, the thermojunction, and the radiation pyrometer, which have been constructed for use in works where observational skill on the part of the users cannot be taken for granted. Several of the methods described have received attention in these columns as they have been developed from those suitable for more accurate work.

MORE than forty pages of the number of *Himmel und Erde* for December 30, 1910, are devoted to addresses on the principle of relativity which have been delivered before scientific societies in Germany during the past year. The first of these, delivered by Prof. E. Cohn, of Strassburg, before the Scientific and Medical Society of that city, aims at a clear exposition of the principle to an audience to whom it was comparatively unknown, and it succeeds admirably in its object by the help of experiments performed with an ingenious model designed for the purpose. The second, delivered by Prof. H. Poincaré, of Paris, before the Scientific Society of Berlin, goes somewhat more fully into the reasons which have led to the extension to general physics of a principle as old as Galileo and Newton, that our knowledge of the motion of any body can only be of its motion with respect to some other body. When this principle is traced to its logical conclusion in relation to the known facts about the speed of light, it leads to the denial of most of the laws of the old mechanics. The units of mass, length, and time on one moving body will differ from those on another moving body by amounts which depend on the relative motions of the bodies with respect to each other. Prof. Poincaré is not disposed to accept the principle as fundamental throughout physics, and points out many of the difficulties which still have to be overcome before it can be regarded as altogether satisfactory.

WE have just had the opportunity of trying the "tabloid" preparations of Messrs. Burroughs Wellcome and Co. as specially arranged for colour photography by the single-plate (or screen-plate) processes. They give excellent results, and the uniformity which the use of tabloids ensures eliminates a fruitful source of uncertainty that too often spoils the work of those who use such plates at irregular intervals. The formulæ given are suitable for the Autochrome, Thames, Ominicolore, and Dufay plates. The cartons are three only—the developer, the reversing compound, and the intensifier, the last often being unnecessary.

A PAPER on the inversion of cane-sugar under the influence of acids and neutral salts, by Mr. Noël Deerr, has been issued as Bulletin No. 35 of the Agricultural and Chemical Series of the Experiment Station of the Hawaiian Sugar Planters' Association. The author has determined the influence of twenty-three different salts upon the rate of inversion of cane-sugar by hydrochloric and other acids.

THE *Bio-Chemical Journal* of January 17 contains an article, by Prof. B. Moore, "In Memory of Sidney Ringer

[1835–1910]. Some Account of the Fundamental Discoveries of the Great Pioneer of the Bio-chemistry of Crystallo-colloids in Living Cells." This may be regarded as supplementing the biographical notice of Ringer's career, and of his work as a clinician, which is to be found in the *British Medical Journal* of October 29, 1910.

WE have received from Messrs. E. Merck, of Darmstadt, a copy of the third German edition of their "Index" of pharmaceutical preparations. Eight years have elapsed since the second edition was issued, and the index now forms a handsome volume of nearly 400 pages. Copies of the new edition can be procured from the London agent of the firm.

THE properties of binary mixtures of some liquefied gases are described in the Journal of the Chemical Society by Dr. B. D. Steele and Mr. L. S. Bagster, of Melbourne University. The mixtures chosen were those of sulphur dioxide with hydrogen bromide, and hydrogen sulphide with hydrogen bromide and with hydrogen iodide. The vapour pressures were plotted for a series of temperatures from -35° to -75°. A mixture of hydrogen sulphide and hydrogen bromide in the proportion of 60 to 40 was found to have a minimum vapour pressure (or maximum boiling point, analogous to those observed in mixtures of water with the halogen acids), in spite of the fact that the solutions are non-conductors and have given no evidence either of ionisation or of association. Mixtures of hydrogen sulphide and hydrogen iodide, on the other hand, gave direct linear relationships between total vapour pressure and composition (of liquid) and between the vapour pressures of the two constituents and the concentration of the liquid, thus adding another to the very short list of pairs of liquids which obey Raoult's law throughout the whole range of compositions.

THE fourth volume of the Journal of the Institute of Metals is now available. It has been edited by Mr. G. Shaw Scott, the secretary of the society, and copies may be purchased at the offices of the institute, price 21*s*. net. The greater part of the volume consists of the papers of scientific interest read at the annual autumn meeting of the institute held in Glasgow last September, abstracts of which were published in NATURE of September 29 (vol. lxxxiv., p. 421). These papers are in the volume supplemented by written communications from eminent authorities after the papers were read. The first May lecture, which was delivered by Prof. W. Gowland, F.R.S., is also included, together with a series of abstracts of papers relating to the non-ferrous metals and the industries connected with them.

OUR ASTRONOMICAL COLUMN.

SPLENDID METEOR ON JANUARY 25.—Mr. W. F. Denning writes:—"St. Paul's Day, January 25, has been noted in past years for occasionally supplying very large meteors, and it has maintained its character this year.

"A fireball was seen at 7h. 5m. p.m. by Mr. J. L. Haughton, of Birmingham, falling very slowly from the region of Aldebaran in Taurus to κ Orionis. The meteor was more brilliant than Venus at her best, but there were some clouds in the sky, which prevented the best effects being observed and interfered with the accuracy of the record. Near Leeds, Mr. J. H. Park witnessed the meteor sailing very slowly along from the north-west to south-east, and passing south-west of the Pleiades. The heavens were much overcast, and only a few stars visible.

"The probable radiant of the fireball was in Cepheus at $330^\circ + 58^\circ$, and it apparently belonged to the same stream as that which supplied the magnificent fireball of January 25, 1894. The recent one passed from over Monmouth to Wiltshire at a height of about 83 to 46 miles, but additional observations are required."

NOVA LACERTÆ.—In No. 4466 of the *Astronomische Nachrichten* Dr. Max Wolf publishes a reproduction of the region about Nova Lacertæ from a photograph taken on January 2 with an exposure of thirty-one minutes. The reproduction covers a circular region of 1° diameter, with the nova at the centre, and shows stars to about the fifteenth magnitude; the B.D. comparison stars are especially marked. The earlier plates on which a star of magnitude twelve or thirteen is shown in the nova's position were taken on July 15, 1904 (exposure 3h. 46m.) and January 9 and 11, 1894 (2h. 30m. exposure), the former with the Bruce and the latter with the 6-inch telescope. In No. 4467 of the same journal the result of a comparison of positions of this faint object and the nova is announced, and it seems reasonably certain that they are identical—that the star took part in the catastrophe producing the nova.

The identity is confirmed by Prof. Barnard, who, in No. 4468 of the *Astronomische Nachrichten,* states that he has found the image of a fourteenth-magnitude star in the place of the nova on plates taken on August 7, 1907, August 22 and 24, 1909, and October 11, 1893. On the first-named plate the position of the image agrees within 0·01s. in R.A. and 0·1″ in dec., with the nova's position as determined with the 40-inch micrometer. In the 40-inch telescope the nova has two distinct and sharp foci, such as were also exhibited by Nova Geminorum (1903), the one being 8 mm. further from the object-glass than the other. Prof. Barnard has never noted this peculiarity in other stars, and ascribes it to the great brilliance of the crimson Hα line of hydrogen, as shown on the Yerkes spectrograms.

For January 10 and 16 Prof. Millosevich gives the magnitude of the nova as 7·4 and 7·7 respectively.

Dr. Münch obtained a spectrogram with a 15-cm. objective prism used with the Zeiss triplet of the Potsdam Observatory on January 6 and 7, and the same prism was used, by Dr. Eberhard, in connection with the 30-cm. reflector on January 8. The plates show a continuous spectrum crossed by a number of bright lines. The hydrogen lines Hα–Hη are bright and very broad, and there is a very bright band at λ 4654. A broad absorption band appears on the more refrangible side of Hγ, a bright emission line is seen at λ 4056, and near it, at λ 4045, there is a distinct absorption line; the K line is much fainter than would be expected from the brightness of the emission lines.

A plate taken by Prof. Hertzsprung on May 22, 1910, shows no trace of the nova, which was then certainly fainter than the eleventh magnitude.

M. Felix de Roy, Antwerp, found the magnitude of the nova on January 7 to be 7·8, and the colour was about 6° on Osthoff's scale. A telegram from Herr Mewes, Breslau, states that the nova was exceedingly red on January 14.

ABSORBING MATTER IN SPACE.—In No. 5 of the Transvaal Observatory Circulars Mr. Innes discusses the blank region of the sky around the star S. Corona Aust., and suggests that the apparent vacuity may be the result of the interposition of an absorbing medium which cuts off the light of the stars behind it. Messrs. Innes and Worssell find that in one part of the region the field of the 9-inch refractor (25′) includes no star of any magnitude. The latter also considers that he is able to detect a distinct difference in tint on passing the border of the blank and starry parts of the sky; the region is probably unique. Some of the stars appear to be surrounded by nebulous matter, but the small dark patches—seen on a photograph reproduced on Plate xxii.—are the most remarkable objects. Mr. Innes suggests that all the phenomena could be best explained by supposing that irregular sheafs of gas, some of which are dark and opaque, others slightly luminous at their extremities, cover the region. Where this gas is impenetrable no stars are seen; rifts in it allow other stars to appear; and where it is slightly luminous the stars behind it appear with circumjacent nebulosities.

In 1899–1901 the tenth-magnitude star Cor.D.M. -36° 13208 was recorded by Mr. Innes as "not seen,"